UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/630,844	08/02/2000	Zaki Chasmawala	5150-22400	8023

7590 09/30/2003

Jeffrey C Hood
Conley Rose & Tayon PC
P O Box 398
Austin, TX 78767

EXAMINER	
KNOLL, CLIFFORD H	
ART UNIT	PAPER NUMBER
2189	

DATE MAILED: 09/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/630,844	CHASMAWALA ET AL.	
	Examiner	Art Unit	
	Clifford H Knoll	2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-42 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-42 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5 and 27 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5, "the bus" (line 29) lacks clear antecedent basis.

In claim 27, the "or" (line 3) ends the recitation indefinitely.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1-30 rejected under 35 U.S.C. 102(e) as being anticipated by von der Wense (US 6598107).

Regarding claim 1, von der Wense discloses a memory configured to store program code (col.5, lines 8-31) and embedded processor configured to execute the program code (col.5, lines 36-37), bus interface logic coupled to the

embedded processor adapted to interface with a device (col.4, lines 55-64), CAN interface logic and the processor operable to execute the program code to perform a CAN event in response to the bus interface logic receiving a trigger signal on the interconnecting bus from the device (col.5, lines 42-50).

Regarding claim 2, von der Wense also discloses the CAN event substantially synchronous with a peripheral device event (col.5, lines 42-44).

Regarding claim 3, von der Wense also discloses the CAN event comprising transmitting a CAN frame on the CAN bus (col.1, lines 32-33).

Regarding claim 5, von der Wense discloses the logic operable to receive the trigger signal on a first line of a plurality of lines on the bus (col.5, lines 7-9), and an embedded processor operable to receive configuration information from the host computer selecting the first line among a plurality of lines (col.5, lines 9-11).

Regarding claim 7, von der Wense discloses a memory configured to store program code (col.5, lines 8-31) and embedded processor configured to execute the program code (col.5, lines 36-37), bus interface logic coupled to the embedded processor adapted to interface with a device (col.4, lines 55-64), CAN interface logic (col.5, lines 42-50), where the bus interface logic is configured to asset a trigger signal on the interconnecting bus to the device in response to the embedded processor performing a CAN event (col.5, lines 9-11)

Regarding claim 8, von der Wense also discloses the CAN event substantially synchronous with a peripheral device event (col.5, lines 42-44).

Regarding claim 9, von der Wense also discloses the CAN event comprising transmitting a CAN frame (col.1, lines 32-33).

Regarding claim 10, von der Wense also discloses the CAN event comprising receiving a CAN frame (col.5, lines 5-9).

Regarding claim 11, von der Wense also discloses receiving an indication of a function call invoked by a user application program running on the host computer (col.1, lines 54-63).

Regarding claim 12, von der Wense discloses the logic operable to receive the trigger signal on a first line of a plurality of lines on the bus (col.5, lines 7-9), and an embedded processor operable to receive configuration information from the host computer selecting the first line among a plurality of lines (col.5, lines 9-11).

Regarding claim 14, von der Wense discloses receiving a trigger signal on the interconnecting bus from the device (col.5, lines 42-50), perform a CAN event in response receiving a trigger signal on the interconnecting bus from the device (col.5, lines 42-50), and the CAN event substantially synchronous with a peripheral device event (col.5, lines 42-44).

Regarding claim 15, von der Wense also discloses the CAN event comprising transmitting a CAN frame (col.1, lines 32-33).

Regarding claim 19, CAN interface to perform a CAN event, and CAN interface transmitting a trigger signal to the peripheral device through the interconnecting bus in response to the CAN interface performing the CAN event

(col.5, lines 9-11), wherein the trigger signal is operable to direct the device to perform an event (col.5, line 11).

Regarding claim 20, von der Wense also discloses the CAN event comprising transmitting a CAN frame (col.1, lines 32-33).

Regarding claim 21, von der Wense also discloses the CAN event comprising receiving a CAN frame (col.5, lines 5-9).

Regarding claim 22, von der Wense also discloses receiving an indication of a function call invoked by a user application program running on the host computer (col.1, lines 54-63).

Regarding claim 24, von der Wense discloses a peripheral device coupled to the host computer system (col.5, lines 8-31), a CAN bus (col.1, lines 32-33), one or more CAN devices (col.1, lines 28-29), an interconnecting bus (col.1, lines 15-21), where the CAN interface device and peripheral device are operable to communicate with each other using the interconnecting bus to synchronize measurement and/or control operations on the physical system (col.5, lines 7-11).

Regarding claim 25, von der Wense also discloses bus interface logic (col.5, lines 10-11) and CAN interface logic (col.3, lines 10-18).

Regarding claim 26, von der Wense also discloses the device operable to provide a signal over the interconnecting bus to the CAN interface device in response to a peripheral event occurring in the peripheral device (col.3, lines 3-6), the CAN interface operable to receive the signal from the interconnecting bus and to perform a CAN event in response to receiving the signal (col.5, lines 7-9).

Regarding claim 27, von der Wense also discloses one or more of initiation of a signal transmission from the peripheral device to the physical system; acquisition of a signal from the physical system (col.5, lines 7-9).

Regarding claim 28, von der Wense also discloses transmitting a CAN frame or generating a signal timestamp (col.3, lines 19-23).

Regarding claim 29, CAN interface to perform a CAN event, and CAN interface transmitting a trigger signal to the peripheral device through the interconnecting bus in response to the CAN interface performing the CAN event (col.5, lines 9-11), wherein the trigger signal is operable to direct the device to perform an event (col.5, line 11).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-42 rejected under 35 U.S.C. 103(a) as being unpatentable over Rao (US 2003/0028701) in view of von der Wense, further in view of Pinto ("Networked, intelligent I/O, the truly distributed control revolution", ISA Proceedings, December 1999).

Regarding claim 1, Rao discloses a memory configured to store program code and embedded processor configured to execute the program code (e.g.,

paragraph [0019], figure item 100), bus interface logic coupled to the embedded processor adapted to interface with a device (e.g., paragraph [0019], figure item 142), local I/O bus interface logic and the processor operable to execute the program code to perform an event in response to the bus interface logic receiving a trigger signal on the interconnecting bus from the device (e.g., paragraph [0019], figure item 166).

Regarding claims 14 and 19, Rao discloses the local I/O interface receiving a trigger through an interconnecting bus and the local I/O interface receiving the trigger signal and performing an I/O event substantially synchronously (e.g., figure item 138).

Regarding claim 24, Rao discloses a host computer system (e.g., figure items 100, 108), a peripheral device coupled to the host computer system (e.g., figure item 142), a local I/O bus and one or more coupled devices (e.g., figure item 118) wherein the interface device is directly coupled to the peripheral device operable to synchronize measurement and/or control operations (e.g., figure items 146, 138).

Regarding claim 31, Rao discloses the interface acquiring data frames from the bus (e.g., figure item 146, 138), generating timestamps (e.g., figure item 119), transmitting a trigger signal on the interconnecting bus in response to a peripheral event (e.g., figure item 138), receiving the trigger signal and generating a trigger timestamp (e.g., figure item 166), and determining one or more of the data frames which correlate in time with the peripheral event (e.g., paragraph [0036], Figure 6).

Regarding claim 37, Rao discloses a peripheral device transferring data values (e.g., paragraph [0017], figure items 112, 144), the peripheral device generating peripheral timestamps indicating times of transference (e.g., paragraph [0037], Figure 6), an interface performing a frame transfer (e.g., paragraph [0017], figure items 118, 146), a trigger signal a trigger timestamp generated and determining from the peripheral timestamps the one or more of the data values (e.g., paragraph [0037]).

Further regarding claims 1, 14, 19, 24, 31, 37, Rao also discloses a second bus being a local I/O bus and discloses various embodiments thereof (e.g., [0016]). Rao does not expressly mention the CAN bus protocol as a particular embodiment; however this feature is disclosed by von der Wense (e.g., col.1, lines 23-33). Von der Wense discloses a CAN bus as a particular embodiment of a local I/O bus (e.g., col.1, lines 23-24). It would be obvious to use the CAN bus von der Wense as the local I/O bus of Rao, because a CAN bus is well known as a particular embodiment of a local I/O bus which Rao discloses. This is exemplified by Pinto. Pinto discloses the CAN bus as particular protocol for standard local I/O bus architectures. Therefore it would be obvious to a person of ordinary skill in the art to combine Rao with von der Wense, further as exemplified by Pinto at the time the invention was made.

Regarding claims 4 and 16, Rao also discloses generating a timestamp and storing the timestamp (e.g., paragraph [0037], Figure 6).

Regarding claim 18, Rao also discloses transmitting the trigger signal in response to performing a data transfer (e.g., figure items 138, 166).

Regarding claim 27, Rao also discloses one or more of initiation of a signal transmission from the peripheral device to the physical system; acquisition of a signal from the physical system (e.g., figure items 116, 117, 118).

Regarding claim 32, Rao also discloses analyzing the physical system using I/O data frames that correlate in time with the peripheral event (e.g., figure item 166).

Regarding claim 33, Rao also discloses the determining performed by the I/O interface (e.g., figure item 138).

Regarding claim 34, Rao also discloses read the data frames, I/O timestamps and trigger timestamps and the determining is performed by the host computer system (e.g., figure items 112, 166).

Regarding claim 35, Rao also discloses the event comprising one of the device transmitting signals to the physical system; acquiring signals from the physical system; a clock signal transition (e.g., Figure 6).

Regarding claim 38, Rao also discloses acquiring the data from the physical system (e.g., [0017], figure item 108).

Regarding claim 39, Rao also discloses transmitting data to the physical system (e.g., [0017], figure item 108).

Regarding claim 40, von der Wense also discloses receiving a CAN frame (col.5, lines 5-9).

Regarding claim 41, von der Wense also discloses transmitting a CAN frame (col.3, lines 19-23).

Claims 6, 13, 17, 23, 30, 36, 42 rejected under 35 U.S.C. 103(a) as being unpatentable over Rao in view of von der Wense and Pinto as applied in claims 1, 14, 19, 24, 31, 37 above, further in view of Barkesseh (US 6208919). Rao discloses a method for correlating measurements in a system comprising a host computer system with an interconnecting bus (e.g., figure items 142, 138, 112) but does not expressly mention the interconnecting bus comprising the REAL-TIME SYSTEM INTEGRATION (RTSI) bus. However, this feature is disclosed by Barkesseh. Barkesseh discloses the RTSI bus for synchronizing data signals (col.2, lines 54-55). It would be obvious to combine Barkesseh with Rao, because the RTSI bus of Barkesseh is intended for use precisely in a monitoring test environment that comprises a local and host bus such as the invention of Rao. Therefore it would be obvious to a person of ordinary skill in the art to combine Barkesseh with Rao and von der Wense at the time of the invention.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Liu (US 6282673) discloses an alternative method for correlating measurements in a system (e.g., Figure 2). Kaler (US 6467052) discloses a method for synchronizing measurements in a monitoring system. Farley (US 2002/0078381) discloses an application of event synchronization in a monitoring system. Buda (US 6611724) discloses a monitoring system with event synchronization connected to a fieldbus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clifford H Knoll whose telephone number is 703-305-8656. The examiner can normally be reached on M-F 0630-1500.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H Rinehart can be reached on 703-305-4815. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2100.

chk